RESEARCH ARTICLE

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Assessment of Forensic Medical Expert's Involvement in Primary Crime Scene Investigation in Nairobi

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ABSTRACT

It is of great importance to include Forensic Medical Experts (FMEs) in Primary Crime Scene (PCS) investigation team especially in murder, rape and defilement in investigation framework. The criminal justice system in Kenya has not been effective due to the shortage of FMEs as well as the poor specialization among forensic experts and police officers in implementing Medico-legal services within the country. This research sought to assess the need to involve FMEs in PCS investigation in Starehe sub-county, which comprises of five stations, for the purpose of improving the quality of criminal investigation in the country. A systematic random sampling technique of case files brought back from court was used. The sample size was calculated by dividing the entire case files by interval. There were one hundred and thirty-five (135) case files numbered from one to one hundred and thirty-five (135), then picked at an interval of two from a random number. Sixty-seven (67) case files were sampled, studied and analyzed. Three hypotheses were developed to be tested. The main objective was to assess forensic medical expert's involvement in PCS investigation in starehe police division, Nairobi County, Kenya. Data analysis was done using SPSS and presented with tables, and narrative. From the tested hypothesis we were able to discover that the FMEs in Kenya are not well trained and professional in the use of SOPs for collecting forensic evidence at PCS H1 (p=0.754); the Kenyan criminal justice system framework does not involve FMEs at all primary stages of investigations H2 (p=0.878); Cases in Kenyan courts are not very successful without the use of FMEs H3 (p=0.247). Involvement of the FMEs in primary crime scenes investigation ensures that there is adequate and sufficient evidence to prosecute criminals convicted of such criminal acts. Cases without forensic evidence component failed to secure a conviction indicating that their absence impacts the quality of evidence submitted to present a sound case to prosecute offenders. FMEs should respond alongside police crime scene investigators and be linked to crime scenes at all stages of investigation to collect forensic evidence to identify suspects responsible for committing criminal activities at the PCS. Forensic evidence should be presented by a qualified professional who complies with standards that enhance efficiency and fairness. The forensic medical evidence at the primary crime scene is best armed with skills, knowledge and tools that are required to aid the investigators to make maximum use of scanty resources available with regard to collection and analysis of biological and chemical evidence. There should be clearer guidelines on the steps to follow in regard to evidence collection. The results of this study will be used by policy makers and health care providers to improve forensic evidence gathering for better and successful prosecution.

Keywords: Crime Scene Investigations, Criminal Justice System, FMEs, SOPs.

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I. Introduction

The key goal of forensic medical experts is to provide objective evidence of etiology, timing, and the manner of death, injuries for making a ruling by the criminal justice system. Despite increasing development and restructuring of the Kenyan judicial system, there has been a loophole that has led to increasing number of criminal cases being dismissed due to insufficient forensic medical evidence (FME). According to White (2010), crime scenes are the places where crime has happened or presumed to have happened. The author further identifies two main types of crime scenes: primary crime scene and secondary crime scene. The primary crime scene is an area, place, or where something unpleasant happens or where the largest part of physical and biological evidence will be discovered. (Miller &

Braswell, 2010). A Primary crime scene is essential in ensuring that physical evidence is guarded against tampering or destruction which may erode the value of the evidence (Gardner, 2011). The involvement of FMEs in the processing of crime scenes is a way of fostering the usefulness of physical evidence in order to verify the commission of a crime. The FMEs participate in the identification of suspects responsible for committing criminal activities at the primary scene.

White (2010) argues that for a crime scene to be well preserved there is a need for essential personnel to be involved in the crime scene investigation. Dutelle (2016) posits that essential personnel in any primary crime scene should include Police officers, criminal investigation officers and medical examiners. Police officers are the first responders whose main responsibility is securing the scene to avoid destruction or tampering of evidence as well as detaining of persons of interests in the crime. Criminal investigation officers' units are responsible for detailed documentation of the primary crime scene and collecting any physical evidence. On the other hand, medical examiners are mandated with the role of conducting preliminary investigation into the cause of death, rape, injuries sexual assault and defilement.

The collection of evidence starts at the primary crime scene, for it contains seen and unseen things or information and the detective should be keen to gather all evidence (Bryd, 2004; Ogle *et al*., 2004). Every part of evidence should be noticed, gathered, and kept as a different entity (Van Niekrek, 2004; Fisher, 2006). Forensic evidence can be used to connect crimes that are perceived to be related to one another hence establishing guiltiness or innocence of the suspected criminals (US Legal, 2016).

According to Olumbe (2000) the main concern in Kenya, is putting emphasis on preventive medicine, forgetting Forensic medicine interests falling behind. Most forensic cases that are reported to the police, they pick the bodies and transfer them to the City Mortuary, especially murder. If they are in other counties, they are taken to the sub-county hospital mortuaries. Post-mortem done at city mortuary include sudden deaths, road traffic accidents and violent deaths, deaths under unknown circumstances including medical misadventures, suicide, deaths found within or brought into the Kenya, deaths in lawful custody and deaths due to execution of an offender. The information or evidence gathered here is secondary evidence. In most cases the judicial system is deprived of sufficient information required for drawing up a fair ruling.

Kivoi and Mbae (2013) conducted an Empirical analysis of the reforms within the National police service in Kenya. The Researcher noted that policing has dated since Pre-independence; however, shortcomings in the level of professionalism and lack of modern crime fighting equipment are the main challenges that have dogged the service. Despite reforms having been achieved within the National police service there are constraints especially in setting up a forensic laboratory within the Department criminal investigations (DCI) which has limited the utilization of medical forensic evidence in dispensation of Justice. On the other Mbaya (2016) examined the state of Forensic investigation in Kenya and concluded that there is a weakness within the system which has led to poor crime investigation and justice delivery within the country. The researcher recommended that there is need for better restructuring within the Forensic investigation department in order to enhance justice delivery within the country. Further Gachuiri (2016) indicates that there has been no documentation of the application of Forensic entomology in legal investigations in Kenya within the law enforcement agents which has limited its' application in solving criminal cases.

A. Statement of the Problem

Despite increasing development and restructuring of the Kenyan judicial system there has been a loophole that has led to increasing number of criminal cases being dismissed due to insufficient forensic medical evidence (FME). According to White, 2015, Crime scene is the place where crime has happened or presumed to have happened. In Kenya, involvement of forensic medical experts in crimes such as murder, rape and defilement are not well facilitated. The FMEs are often missing at the primary crime scenes to collect the much-needed physical, chemical, biological and medical forensic evidence. The absence of FMEs in PCS investigations impacts the quality of evidence submitted in courts of law.

According to a study by Security research and information center, statistics indicate that theft (35.37%) was the main type of crime across the four sampled slum areas. In addition, robbery (15.55%), burglary/break-ins (10.67%) and mugging (23.17%) were the other main typologies of crime in slum areas, accounting for combined 84.76% of crimes committed in slum areas in Kenya. Asked to state causes of crime in slum areas in urban centers, 61.2% of the respondents cited youth unemployment as the main cause of crime.

Olumbe 2000, stated that there are few FMEs practicing as the majority of the doctors are pursuing other specialties compared with forensic medicine. In fact, few medical training colleges and institutions of higher learning offer forensic medical courses. Mbaya (2016), further alluded that the lack of structures in place to train more experts has further diluted the need to have these professionals assist in unraveling criminal acts in murder, rape, and defilement.

The Kenya Police has relied on post-mortem results to establish and conclude the cause of death, which is secondary evidence, forgetting that much of the evidence lies at the PCS because there are SOPS to be followed when collecting medical evidence at the Primary crime scene (Kivoi & Mbae, 2013).

B. Research Questions

1) What are the existing SOPs for collecting Forensic medical evidence at a PCS in Starehe Police Division, Nairobi County?
2) At what stage are FMEs involved in crime scene investigations in Starehe Police Division, Nairobi County?
3) Are there cases brought before court that succeed without FMEs involvement in primary crime scene investigation in Starehe Police division, Nairobi County?

C. Hypothesis

TABLE I: SUMMARY OF THE HYPOTHESIS

	Hypothesis
H1	The FMEs in Kenya are well trained and professional in the use of SOPs for collecting forensic medical evidence at primary crime scene.
H2	Kenyan criminal justice system framework involves FMEs at all primary stages of investigations
H3	Cases in Kenyan courts are successful without the involvement of FMEs.

II. METHODOLOGY

A. Qualitative Research

Qualitative research was used by the researcher to effectively explore the experiences, perspectives, behavior, and feelings of participants as well as the emphasis of the above-mentioned elements. The reason for utilizing this method in this study is to examine and describe the opinions of FMEs on the challenges they face every day as they go about their duties. The participants' opinions were sought on the level of involvement as well as at what stage they get involved in collection of evidence in a scene of crime and the outcome of court cases in which forensic medical experts are involved in primary crime scene investigation. The study involved the critical phases; conceptual, narrative, and interpretative phases.

The researcher sought to formulate the purpose of the study as it is in this phase. The research question evolved out of the researcher being a medical practitioner and understanding of the need to incorporate forensic medical expertise in the collection of evidence to discharge justice.

There is also the planning of the study design and the researcher lead in data collection. A pre- test study was conducted with at least three or more respondents who satisfied the measurement criteria and thus were not to participate in the main research.

Data collection involved qualitative data that was obtained from the interview schedule. The researcher also made use of the internet to gather articles that provided necessary information in order to comprehend the background of the subject examined.

B. Descriptive Research

This research will be used to give a complete image as it is on the ground. It will also be used to explain the present routines or habits and be able to draw a final conclusion. In relation to this research it will be used to acquire an image of what FMEs' views regarding their involvement in the collection of forensic evidence in crime scenes.

C. Location of the Study

The current study was carried out at Starehe divisional police headquarters within Nairobi County. Starehe division has five police stations, namely, Pangani, Muthaiga, Huruma, Kariobangi and Ruaraka. The rational for selecting Starehe division is based on the fact that the cases of interest are handled and prosecuted by the said stations. In selecting Nairobi County as the representative area of study is justified by the availability of facilities and trained forensic medical experts within the county who go to give forensic medical expertise in the same courts. Further in line with the National Crime Research Center (2015; 2016) report, Nairobi is one of the hot spots of crimes involving human beings such as murder, rape, defilement, and physical assault. It serves the representation of the largest Kenyan population because it hosts low and middle level income earners. There are many informal settlements associated with poverty, second generation industries, especially light industries, hence organized crimes.

D. Target Population

The researcher considered retrospective record reviews of available case files of murder, rape and defilement that involve the participation of forensic medical experts. Population must therefore comprise of building blocks that are suitable to be added in this research. The criteria used to select participants in the study was: The division has 135 reported cases distributed across the five police stations between 2015 and 2018 physical years as per Starehe divisional crime records (2018). Sub-county commander (SCC)-1, Sub- County criminal investigating officer (SCCIO)-1, officer in charge police station (OCS)-5, officers assigned to a station within the division and involved in the prosecution of cases of defilement, rape and homicide-46, Medical Experts who has been involved in crime scene investigation for at least over five years and working with this stations-10.

E. Sampling Procedures and Techniques

The researcher sought the assistance of the sub-county commander who is the head of the police sub-county to facilitate the identification of potential participants. The researcher adopted a retrospective method for choosing and reviewing case files available at Starehe police division repository. The division has 135 reported cases distributed across the five police stations between 2015 and 2018 physical years as per the divisional crime records, 2018. A systematic random sampling technique was used in which a sample from 135 files was selected according to a random starting point but with a fixed, periodic interval. This method was applied because it's simple and efficient.

The researcher numbered the files from 1 to 135 and then picked a file in an interval of two. After employing this technique, the sample size was sixty-seven (67) case files to be studied and analyzed. The study sought to gather information from professionals who were representative of the different categories of investigative units of police and forensic experts within Starehe division. Purposive sampling technique was applied whereby the researcher relied on judgment by choosing who to participate according to convenience which suits the needs of the research by specifically approaching individuals with certain characteristics. Judgmental sampling has the advantage of being time and cost effective to perform whilst resulting in a range of responses. The researcher worked with the administration of the police division and medical professionals in choosing respondents taking into consideration their level of exposure in gathering evidence in crime scenes. The criteria used to select this method was that the researcher was trying to get deeper information on forensic medical experts and trained officers on the level of involvement of FMEs in the collection of forensic medical evidence in primary crime scenes.

F. Sample Size Determination

The sample was chosen from Starehe Division of Police Headquarters in Nairobi County, Kenya. The sampling interval was calculated by dividing the entire population size (files) by the desired sample size, hence: calculate sampling interval (k)=N/n, start randomly between 1 to N, create samples by skipping through K units every time until the entire files have been selected.

Where:

N – size of the population (files)

K – interval

N – size of the sample

Hence: (K)=N/n (…2=135/n; n=135/2=67.5), therefore n is taken as sixty-seven (67) files.

Through judgmental sampling technique, one sub-county commander, one sub-county criminal investigative officer, five officers commanding police stations, 46 crime scene investigators and 10 medical experts. In total, the sample size for professionals was 63 who acted as key informants to help the researcher in gaining an insight into the involvement of forensic medical experts in primary crime scene investigation.

G. Inclusion Criteria and Exclusion Criteria

TABLE II: INCLUSION AND EXCLUSION CRITERIA

Inclusion criteria	Exclusion criteria
Officers≥30 years of age Must have handled cases with DCI Level of experience≥ 5 years Working in crime hotspot areas	Refusal to participate Conflict of interest Active cases still in court

H. Construction of Research Instruments

The researcher developed two research instruments; structured questionnaire which was designed to measure subjective responses and obtain data to clarify objective responses. The questionnaire sought information on their views on the role of forensic medical experts in primary crime scene investigation. Gay, (2013), notes that a questionnaire was much more efficient because it required less time and was less

expensive. Physical review of case files which had been returned from courts in relation to murder, rape and defilement were also considered in this study. The researcher also used document analysis as a secondary data method of collecting information; the internet as a research tool in establishing the role of forensic medical experts in a crime jurisdiction.

I. Testing for Validity and Reliability

A pre-test was carried out in the neighboring police divisions (Buruburu) which were not included in the sample. For these reasons, the researcher carried out a pre-test by administering questionnaires in order to test validity and reliability of the research instruments and thereby sought suggestions on how to improve them.

1) Cronbach's alpha

TABLE III: CRONBACH'S ALPHA RULE OF THUMP

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

J. Reliability Test

The Cronbach's alpha method was used to assess the reliability of the research tools in order to estimate the internal consistency. Cronbach's alpha will tell if the test designed is accurately measuring the variable of interest.

The formula for Cronbach's alpha is:

$$\alpha = \frac{N \times \bar{c}}{\bar{v} + (N-1) \times \bar{c}} \qquad (1)$$

where:

N – the number of items.

$\bar{c}$ – average covariance between item-pairs.

$\bar{v}$ – average variance.

A rule of thumb for interpreting alpha for dichotomous questions (i.e., questions with two possible answers) or Likert scale questions.

K. Quality Control

This comprises all the techniques, systems and resources that are deployed in this research to give assurance about the care and control with which the research has been conducted. The responsibilities of those involved in this research for quality assurance include: the transparency involved in this project planning; the training and competence of research staff; facilities and equipment; documentation of procedures and methods; research records and the handling of samples and materials.

L. Data Analysis Techniques and Procedures

Data analysis began at the point of conducting the first interview. Data was collected from selected case files returned from courts and professionals from police investigations and from the forensic area. Qualitative data was categorized, and data framework created, identified patterns, interprets data and explains the findings. In quantitative data analysis researcher used percentage. The researcher acknowledges that the study provided both qualitative and quantitative data. The quantitative data was reviewed to remove ambiguity before the study was analyzed. Data was coded into SPSS (version 1, 2016) and analyzed using descriptive statistics. The second part used a non-parametric data analysis method. The reliability and overall consistency of the data was tested using the cronbachs alpha test. The data has the following characteristics: 1. The group is measured on more than one occasion, 2. The group is a random sample of the population, 3. The dependent variable will be measured at an ordinal level, 4. The samples in this study are not normally distributed (Katherine, 2014).

Since the data is characterized by these conditions, we shall then conduct the Friedman'sAnova test to test the hypothesis. In order to learn the behavior of every individual variable, we shall conduct the post-hoc test based on the findings of the Friedman'sAnova test. The data has passed the four main assumptions to allow us to use this test. The analyzed data was presented using percentages, frequencies, means, standard deviation, charts, and tables.

III. Research Findings, Analysis and Presentation

A. Stage of Involvement of FMES in Primary Crime Scene Investigation

The variables under this section seek to test our first hypothesis (H1). To test this hypothesis, we begin by testing the reliability and internal consistency of the data. We hence conduct the Cronbach's Alpha statistical test on SPSS. The closer the value is to one indicates the more reliability and internal consistency of the data. Cronbachs Alpha $\alpha \geq 0.7$ indicates that the data is adequately reliable; Cronbachs alpha $\alpha \geq 0.85$ significantly reliable; Cronbachs alpha $\alpha \geq 0.9$ indicates that the data is very reliable (Mohsen et al, 2011). The level of significance was set at 0.05.

The variables that we use to test H1 include VAR2 to VAR8. VAR2; FMEs participate in gathering of evidence from the primary scene of crime. VAR3; forensic evidence collected in primary scenes is used in administration of justice VAR4; only fully trained forensic medical experts are involved in the crime scene investigation. VAR5; there are clearly laid out policies to guide the primary crime scene investigation process VAR6; forensic medical experts are assigned and distributed across the five police stations VAR7; forensic medical experts are linked to crime scene at all stages of investigations VAR8; all FMEs are trained in collection of medical evidence at PCS.

Because of the nature of the questionnaire, we have to perform reverse coding at the data entry stage on SPSS on the variables to place them in line with the data analysis method.

We conduct the Cronbach's alpha test on the H1 variables to test their reliability and measure their internal consistency. The items being tested are VAR2, VAR3, VAR4, VAR5, VAR6, VAR7 and VAR8.The data is as presented on Table IV and Table V.

TABLE IV: Reliability Statistics

Cronbach's Alpha	N of Items
0.812	7

TABLE V: Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR2	80.80	6628.700	0.994	0.730
VAR3	80.40	5649.800	0.964	0.702
VAR4	80.80	5001.200	0.974	0.687
VAR5	80.80	10671.200	-0.416	0.935
VAR6	80.80	5855.200	0.951	0.709
VAR7	80.80	6447.200	0.910	0.731
VAR8	80.80	8980.200	0.020	0.856

Using all the items we obtain Cronbach's alpha of $\alpha \geq 0.812$. This figure is greater than 0.7 ($\alpha \leq 0.7$) hence reliable. We can improve reliability by deleting items that are least correlated to the study.

Delete items VAR5 because of the weak negative correlation to the other variables (r=-0.416). The new Cronbach's alpha is as presented on Table VI and Table VII.

TABLE VI: Reliability Statistics

Cronbach's Alpha	N of Items
0.935	6

TABLE VII: Test Variables interpretation

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR2	67.40	7830.300	0.985	0.910
VAR3	67.00	6660.500	0.994	0.898
VAR4	67.00	6013.300	0.981	0.903
VAR6	67.40	6880.300	0.984	0.900
VAR7	67.40	7627.300	0.905	0.914
VAR8	67.40	10025.800	0.129	0.987

The new Cronbach's alpha after deleting item VAR5 is 0.9345($\alpha \geq 0.934$) indicating that the data is excellent. In order to determine whether to reject or fail to reject the null hypothesis, we conduct the Friedman's test on the remaining variables: VAR2, VAR3, VAR4, VAR6, VAR7 and VAR8. This test compares the mean ranks between the related groups and indicates how the groups differ. We conduct the Friedman's test because the data is a non-parametric type. The answers provided in the case files were constrained. The data is as presented on Table VIII and Table IX.

B. Friedman Test

The test statistics show that there is no statistically significant difference in the stage of Involvement of FMES in Primary Crime Scene Investigation. H1 ($x^2 = 1.783$, p=0.878). We therefore reject the null hypothesis.

Since there is evidence that there is no statistically significant difference in H1, we CANNOT conduct

the post-hoc test.

TABLE VIII: FRIEDMAN'S TEST

	N	Mean	Std. Deviation	Minimum	Maximum
VAR2	5	13.4000	15.01000	5.00	40.00
VAR3	5	13.4000	20.92367	0.00	50.00
VAR4	5	13.4000	26.13044	0.00	60.00
VAR6	5	13.4000	20.62280	0.00	50.00
VAR7	5	13.4000	17.34359	2.00	44.00
VAR8	5	13.4000	15.59808	0.00	39.00

TABLE IX: TEST STATISTICS

N	5
Chi-Square	1.783
Df	5
Asymp. Sig.	.878

C. The FMEs in Kenya are Well Trained and Professional

These variables test our second hypothesis (H2). The variables in this section include VAR9 to VAR14. VAR9; qualified medical experts enhance the effectiveness of forensic evidence collected; VAR10; trained forensic medical experts are able to assist in crime profiling and determining the direction of investigation. VAR11; involvements of trained forensic medical experts ensure efficiency and fairness in administration of legal justice VAR12; competent and trained medical experts reduce professional misconduct in gathering forensic evidence and administration of justice. VAR13; availability of support facilities enhances the collection of forensic evidence among forensic medical experts. VAR14; trained forensic medical experts enhances administration of justice by ensuring the legal procedures are followed in collection of forensic evidence. Because of the nature of the questionnaire, we have to perform reverse coding on the variables to place them in line with the data analysis method.

Using all the items we obtain a Cronbach's alpha of $\alpha \geq 0.645$. This figure is less than 0.7 ($\alpha \leq 0.7$) hence questionable. We can improve reliability by deleting items that are least correlated to the study. The data is as presented in Table X and Table XI.

TABLE X: RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
0.645	6

TABLE XI: TEST VARIABLES INTERPRETATION

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR9	82.80	3719.200	0.138	0.677
VAR10	82.40	3464.800	0.856	0.558
VAR11	82.40	3159.300	0.652	0.534
VAR12	82.40	3252.300	0.729	0.536
VAR13	66.60	1979.300	0.380	0.725
VAR14	82.40	3461.300	0.328	0.619

Delete items VAR13 because of the weak correlation to the other variables (r=0.380) respectively. The new data is as presented on Table XII and Table XIII.

TABLE XII: RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
0.725	5

TABLE XIII: TEST VARIABLES PRESENTATION

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR9		1626.300	0.063	0.873
VAR10	53.20	1424.700	894	0.607
VAR11	53.20	1397.200	0.435	0.697
VAR12	53.20	1184.700	0.914	0.529
VAR14	53.20	1136.200	0.611	0.622

The new Cronbach's alpha after deleting item VAR13 0.725 ($\alpha \geq 0.725$) indicates that the data is excellent. In order to determine whether to reject or fail to reject the null hypothesis, we conduct Friedman's test on the remaining variables: VAR9, VAR10, VAR11, VAR12 and VAR14. This test compares the mean ranks between the related groups and indicates how the groups differ. We conduct the Friedman's test because the data is a non-parametric type. The answers provided in the case files were

constrained.

The data is as presented on Table XIV and Table XV.

TABLE XIV: TEST VARIABLES PRESENTATION

	N	Mean	Std. Deviation	Minimum	Minimum
VAR9	5	13.000	16.43168	0.00	40.00
VAR10	5	13.400	7.40270	2.00	20.00
VAR11	5	13.4000	12.83745	0.000	28.00
VAR12	5	13.4000	10.78425	2.000	31.00
VAR14	5	13.4000	15.01000	5.00	40.00

D. Friedman Test

TABLE XV: TEST STATISTICS

N	5
Chi-Square	1.899
Df	4
Asymp. Sig.	0.754

1) Friedman Test

The test statistics show that there is no statistically significant difference in the training of forensic medical experts. H1 ($x^2 = 1.899$, p=0.754). We therefore reject the null hypothesis.

Since there is evidence that there is no statistically significant difference in H1, we CANNOT conduct the post-hoc test.

E. Cases that Succeed Without FMEs Involvement at Primary Crime Scene

The items in this hypothesis are VAR15 to VAR18. VAR15; involvement of trained forensic experts ensures efficiency and fairness in administration of legal justice, VAR16; many cases succeed without FMEs involvement. VAR17; few cases succeed without FMEs involvement. VAR18; FMEs comply to standards in the use of forensic evidence that enhance administration of justice. Because of the nature of the questionnaire, we have to perform reverse coding on the variables to place them in line with the data analysis method.

Using all the items we obtain Cronbach's alpha of α≥0.727. This figure is greater than 0.7 (α\geq0.7) hence valid. We can improve reliability by deleting items that are least correlated to the study. The data is as presented on Table XVI and Table XVII.

TABLE XVI: RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
0.727	4

TABLE XVII: CRONBACH'S ALPHA

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR15	40.200	442.700	0.858	0.438
VAR16	40.200	1524.700	0.007	0.827
VAR17	40.200	671.200	0.943	0.362
VAR18	40.200	1157.700	0.425	0.718

Delete items VAR16 because of the weak correlation to the other variables. The results are presented on Table XVIII and Table XIX.

TABLE XVIII: RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
0.827	3

TABLE XIX: Cronbach's Alpha

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR15	26.800	449.700	0.817	0.692
VAR17	26.800	643.700	0.971	0.477
VAR18	26.800	1115.700	0.463	0.952

The new Cronbach's alpha after deleting item VAR16 is 0.827 (α≥0.827) indicating that the data is 82.7% reliable. In order to determine whether to reject or fail to reject the null hypothesis, we conduct the Friedman's test on the remaining variables: VAR15, VAR17 and VAR18. This test compares the mean ranks between the related groups and indicates how the groups differ. We conduct the Friedman's test because the data is a non-parametric type. The answers provided by the respondents were constrained.

The data is as presented on Table XX and Table XXI.

TABLE XX: DESCRIPTIVE STATISTICS

	N	Mean	Std. Deviation	Minimum	Maximum
VAR15	**5**	13.4000	19.75601	0.00	47.00
VAR17	**5**	13.4000	13.93915	3.00	35.00
VAR18	**5**	13.4000	9.98999	6.00	30.00

F. Friedman Test

TABLE XXI: TEST STATISTICS

N	5
Chi-Square	2.800
Df	2
Asymp. Sig.	0.247

1) Friedman test

The test statistics show that there is no statistically significant difference in the cases that are successful in court without FMEs. H1 ($x^2 = 2.800$, p=0.247). We therefore reject the null hypothesis. Since there is evidence that there is no statistically significant difference in, we cannot conduct the post-hoc test.

G. Summary of Hypothesis Findings

TABLE XXII: Summary of the Hypothesis

	Hypothesis	
H1	The FMEs in Kenya are well trained and professional in the use of SOPs for collecting FME at primary crime scene.	Reject
H2	Kenyan criminal justice system framework involves FMEs at all primary stages of investigations	Reject
H3	Cases in Kenyan courts are successful without the use of FMEs.	Reject

IV. CONCLUSION

Proper policies and legislation provide clarity to the FMEs and police officers when dealing with accountability issues or activities that are of critical importance in the judicial system. They also address pertinent issues, such as what constitutes acceptable behaviors and practices by both staff in the processing of crime scenes is a way of fostering the usefulness of physical evidence in order to verify the commission of a crime.

There should be clearer guidelines on the steps to follow in regard to evidence collection. The paper's research findings indicate that the current procedures are not effective enough in ensuring good evidence collection. The forensic medical experts should be well equipped with evidence collections tools. This should be accompanied by proper training on how to use these tools. The police officers should ensure that the crime scenes are well secured despite pressure from the press or members of public demanding to view the scene. This may be challenging for them but it's a basic necessity to ensure that the crime scenes are not contaminated.

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